

REMARKS

Entry of this paper and further consideration of this application courteously are solicited pursuant to 37 C.F.R. §1.116.

Initially, the Examiner's grant of an extensive telephone interview on September 13, 2002 has been appreciated greatly. It is believed that the interview will prove very beneficial in bringing prosecution of this application to early closure.

During the interview, the Claassen patent was discussed in detail. Likewise, the preferred, exemplary embodiments of Applicants' invention, as defined in the original disclosure, were compared with the Claassen patent. Thereafter, with this background in place, a proposal for further amending claim 1 was discussed. Following discussion of the proposal for amending claim 1, the Examiner encouraged the Applicants to proceed with a formal, written paper that presents the proposed amendment of claim 1, along with remarks focusing on how claim 1 patentably distinguishes over the Claassen patent. Applicants hereby proceed in the manner that the Examiner encouraged. Also, as requested by the Examiner, Applicants clarify their intention for the other independent claims, namely claims 7, 11 and 26.

By this paper, claim 1 has been amended in accordance with the proposal made during the September 13, 2002 interview. Claims 7 and 26, prior to this paper, were independent claims. However, at Applicants' instruction, claims 7 and 26 now are revised to make each of these claims dependent from claim 1. Applicants courteously urge that no amendment is necessary to independent claim 11. Rather, below,

reconsideration of this independent claim, without amendment, will be solicited.

Amended claim 1 will be discussed first.

Paper No. 8 maintained the rejection of claims 1-3, 7-23 and 26-30 as purportedly obvious over Claassen. This rejection is traversed.

As pointed out in previous papers, claim 1 calls for a feeding side two-way valve, and a return side two-way valve in Applicants' coating apparatus. For purposes of discussion, it is convenient to refer to Applicants' exemplary, preferred embodiment of Figure 2. There, the feeding side two-way valve 10 and the return side two-way valve 11 are shown with the flow path 12 that connects to a pipe segment located between the two valves 10 and 11. Of course, the actual nozzle for the apparatus is downstream of the feeding side valve 10, while the (return) tank 7 is downstream of the return side valve 11.

As amended, claim 1 now goes on to recite the particular manner of cooperation between the two recited two-way valves. That is, claim 1 requires that the return side two-way valve discharge coating to the return side during at least a "prescribed period of time" from the time at which feeding of the coating is started by the feeding side two-way valve. Claim 1 continues by reciting that after the expiration of this prescribed period of time, the return side two-way valve stops the discharge of coating to the return side. During the interview with the Examiner, it was noted that the specification gives examples for the "prescribed period of time" as from 5 msec to 500 msec, and preferably from 5 msec to 100 msec. This comes from various portions of the

specification, for instance, the paragraph bridging pages 8 and 9, through page 9 and into page 10. The range for the "prescribed period of time" also is defined in the claims; see claims 2 and 3.

The cooperation of the return side and the feeding side two-way valves as now set forth in claim 1 is significant in the operation of Applicants' coating apparatus. As clear from claim 1, there is a short period of time, namely the recited "prescribed period of time" during which the return side valve 11, and the feeding side valve 10 are both open. That is, there is a period of time during which the flow of coating from flow path 12 is directed both to the nozzle downstream of the feeding side valve 10, and at the same time through the return side valve 11 to the tank 7 downstream of the return side valve. As Applicants describe in the specification, the simultaneous open condition of both the feeding side and return side valves provides a very desirable coating that has uniform thickness. The coated film does not have increased thickness at the starting and terminal ends. Rather, each film 29 has uniform thickness as depicted in Figure 8.

Claassen neither teaches nor suggests Applicants' coating apparatus as now set forth in claim 1. This is because, to those of ordinary skill in the art, Claassen would not have taught or suggested an arrangement wherein feeding side and return side valves can cooperate in the manner recited by Applicants' claim 1. That is, to those of ordinary skill in the art, Claassen could not have taught or suggested provision of simultaneous flow through a two-way feeding valve to a feeding side, and through a two-way return valve to a return side. This is because, to those of ordinary skill in the

art, Claassen teaches that valve 25 is a three-way valve that receives inflow from the supply connection 20 and directs outflow either to the main valve 9, or to the return connection 28. That is, Claassen's three-way valve 25 controls fluid flow so as to alternately provide one of - and only one of - a feed flow path from connecting piece 20, through passage 10, through primary valve 9, and out of nozzle 1, or a return flow path from nozzle 1, through bore 26, and out through connecting piece 28. Because valve 25 is a three-way valve, those of ordinary skill in the art would be taught, through Claassen's arrangement, that valve 25 cannot permit fluid flow through both of such feed and return flow paths at the same time. As such, Claassen cannot teach, to those of ordinary skill in the art, the cooperation between Applicants' recited two two-way valves as required by claim 1.

Applicants have compared the description of Claassen's valve 9, as given at column 3, lines 30-34, with Claassen's description of valve 25 as set forth at column 4, lines 10-23. Based upon this express teaching in Claassen, Applicants respectfully urge that those of ordinary skill in the art would understand that Claassen's arrangement teaches primary valve 9 as operating as a two-way valve for opening or closing the flow path from input connecting piece 20, through valve 25, and to the nozzle 1. Likewise, those of ordinary skill in the art would understand valve 25 as a three-way valve controlling fluid flow from input connecting piece 20 either to primary valve 9 and nozzle 1, or to return connecting piece 28, but not both at the same time. As such, Claassen could not have taught or suggested Applicants' claimed arrangement that

establishes two flow paths from an input flow to each of the feeding (nozzle) and the return (tank) sides for a set, prescribed period of time. As such, Claassen cannot be said to teach or suggest Applicants' coating apparatus as now set forth in claim 1.

For the foregoing reasons, claim 1 courteously is urged as allowable over Claassen. Moreover, the majority of the pending dependent claims are allowable over Claassen by reason of their dependence from claim 1. Further, several of these dependent claims contain independently patentable subject matter. For instance, claim 2 recites the range of the "prescribed period of time" as between 5 msec and 500 msec. Claim 3 recites an even smaller, more preferred range, namely from 5 msec to 100 msec. Claims 2 and 3, as now amended, overcome the objection made in Paper No. 8. They clearly further limit claim 1 by reciting minimums and maximums for the "prescribed period of time" introduced in claim 1. As such, the separate objection to these claims also is overcome.

Independent claim 11, and its respective dependent claims, likewise patentably distinguish over Claassen. However, Applicants courteously urge that there is no need to further amend claim 11 because Claassen does not teach or suggest the features described in claim 11.

Claim 11 defines an arrangement for a coating apparatus that is completely different from the arrangement of Claassen. A preferred example of Applicants' apparatus according to claim 11 is seen from Figure 3, and is understood from Applicants' specification, at the bottom of page 16 to the top of page 18. In this

preferred embodiment, Applicants employ a piston 501 to suck the paint 6 from the nozzle 1, or to return the paint 6 to the nozzle according to a particular ratio of time. With respect to claim 11, Applicants recite a "coating returning means" that draws the coating out of the nozzle and returns the coating to the nozzle. Claim 11 also calls for a "control means" that controls a first operation time A during which the coating is drawn out of the nozzle and a second operation time B during which the coating is returned to the nozzle. Claim 11 concludes by requiring that operation time A be less than operation time B.

To those of ordinary skill in the art, Claassen would not have taught or suggested Applicants' recited elements that actively draw or suck paint from a nozzle. That is, in comparing Applicants' exemplary embodiment of Figure 3 to Claassen, it immediately is clear that Claassen, teaching only an arrangement with valves, does not disclose a device that actively "draws the coating out of the nozzle". Claassen clearly does not teach or suggest any element, such as Applicants' piston 501, that actively draws or sucks paint from a nozzle. Lacking such an active withdrawing or sucking device, Claassen in no way could disclose any particular manner of control over such device whereby the sucking operation time A must be less than the return time B. Claassen therefore could not suggest this requirement of relative sucking (A) and return (B) times such that time period A is less than time period B. For these reasons, Applicants courteously urge that claim 11 patentably distinguishes over Claassen.

Accordingly, each of the remaining claims dependent from claim 11 also patentably distinguishes over Claassen by virtue of its dependency from claim 11.

In view of the foregoing amendments and Remarks, it courteously is urged that all of the remaining claims are allowable over Claassen. Favorable consideration of this application in accordance with the foregoing courteously is solicited.

If any fees under 37 C.F.R. §§ 1.16 or 1.17 are due in connection with the filing of this Response, please charge the fees to Deposit Account No. 02-4300; Order No. 033216.038.

If a Petition under 37 C.F.R. §1.136(a) is required and not included herewith, such a Petition is requested. The requisite fee may be charged to Deposit Account 02-4300, Order No. 033216.038.

Respectfully submitted,

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Date : October 8, 2002

MARKED-UP PREVIOUS VERSION OF AMENDED CLAIMS

1. (Twice Amended) An intermittent coating apparatus, comprising:

a nozzle, which applies a coating to a base material; and

intermittent coating supply means, which intermittently feeds the coating to the nozzle, stops the feeding of the coating to the nozzle, and discharges remaining coating to a return side, the intermittent coating supply means including:

a coating tank,

a flow path supplying coating from the coating tank, the flow path including a feeding side in communication with the nozzle, a return side in communication with the coating tank, and a segment that connects the feeding side and the return side,

a feeding side two-way valve, positioned between the flow path segment and the feeding side of the flow path, that intermittently feeds and stops the feed of the coating to the nozzle, and

a return side two-way valve, positioned between the flow path segment and the return side of the flow path, that intermittently discharges remaining coating to the tank through the return side of the flow path, and stops discharge of the remaining coating to the tank through the return side of the flow path,

wherein [the intermittent coating supply means prevents discharge of the coating to the return side at the time of starting feeding of the coating] the return side two-way valve discharges the coating to the return side during at least a prescribed period of time from the time of starting of feeding of the coating by the feeding side two-way valve, and thereafter the return side two-way valve stops the discharge of the coating to the return side.

2. (Twice Amended) The intermittent coating apparatus according to claim 1, wherein the [time of starting the feeding of the paint to the nozzle is earlier than the time of stopping the discharge of the paint to the return side] prescribed period of time is within a range of not less than 5 msec and not more than 500 msec.

3. (Twice Amended) The intermittent coating apparatus according to claim 1, wherein the [time of starting the feeding of the paint to the nozzle is earlier than the time of stopping the discharge of the paint to the return side] prescribed period of time is within a range of not less than 5 msec and not more than 100 msec.

7. (Twice Amended) An intermittent coating apparatus[, comprising:
a nozzle, which applies a coating to a base material; and
intermittent coating supply means, which intermittently feeds the coating

to the nozzle, stops the feeding of the coating to the nozzle, and discharges remaining coating to a return side, the intermittent coating supply means including:

a coating tank,

a flow path supplying coating from the coating tank, the flow path including a feeding side in communication with the nozzle, a return side in communication with the coating tank, and a segment that connects the feeding side and the return side,

a feeding side two-way valve, positioned between the flow path segment and the feeding side of the flow path, that intermittently feeds and stops the feed of the coating to the nozzle, and

a return side two-way valve, positioned between the flow path segment and the return side of the flow path, that intermittently discharges remaining coating to the tank through the return side of the flow path, and stops discharge of the remaining coating to the tank through the return side of the flow path,]

according to claim 1, wherein the intermittent coating supply means starts the discharge of the coating to the return side at the time of ending the feeding of the coating.

26. (Twice Amended) An intermittent coating apparatus[, comprising:

a nozzle, which applies a coating to a base material; and]

according to claim 1, wherein the intermittent coating supply means[, which intermittently feeds the coating to the nozzle, stops the feeding of the coating to the nozzle, and discharges remaining coating to a return side, the intermittent coating supply means including:

a coating tank,

a flow path supplying coating from the coating tank, the flow path including a feeding side in communication with the nozzle, a return side in communication with the coating tank, and a segment that connects the feeding side and the return side,

a feeding side two-way valve, positioned between the flow path segment and the feeding side of the flow path, that intermittently feeds and stops the feed of the coating to the nozzle,

a return side two-way valve, positioned between the flow path segment and the return side of the flow path, that intermittently discharges remaining coating to the tank through the return side of the flow path, and stops discharge of the remaining coating to the tank through the return side of the flow path, and]

includes control means which independently controls operation of the feeding side two-way valve and the return side two-way valve.

CLEAN COPY OF AMENDED CLAIMS

1. (Twice Amended) An intermittent coating apparatus, comprising:

a nozzle, which applies a coating to a base material; and

intermittent coating supply means, which intermittently feeds the coating to the nozzle, stops the feeding of the coating to the nozzle, and discharges remaining coating to a return side, the intermittent coating supply means including:

a coating tank,

a flow path supplying coating from the coating tank, the flow path including a feeding side in communication with the nozzle, a return side in communication with the coating tank, and a segment that connects the feeding side and the return side,

a feeding side two-way valve, positioned between the flow path segment and the feeding side of the flow path, that intermittently feeds and stops the feed of the coating to the nozzle, and

a return side two-way valve, positioned between the flow path segment and the return side of the flow path, that intermittently discharges remaining coating to the tank through the return side of the flow path, and stops discharge of the remaining coating to the tank through the return side of the flow path,

wherein the return side two-way valve discharges the coating to the return side during at least a prescribed period of time from the time of starting of feeding of the coating by the feeding side two-way valve, and thereafter the return side two-way valve stops the discharge of the coating to the return side.

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control

2. (Twice Amended) The intermittent coating apparatus according to claim 1, wherein the prescribed period of time is within a range of not less than 5 msec and not more than 500 msec.

3. (Twice Amended) The intermittent coating apparatus according to claim 1, wherein the prescribed period of time is within a range of not less than 5 msec and not more than 100 msec.

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4-7 (Twice Amended) An intermittent coating apparatus according to claim 1, wherein the intermittent coating supply means starts the discharge of the coating to the return side at the time of ending the feeding of the coating.

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14-26 (Twice Amended) An intermittent coating apparatus according to claim 1, wherein the intermittent coating supply means includes control means which independently controls operation of the feeding side two-way valve and the return side two-way valve.